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COMMONWEALTH OF AUSTRALIA

PATENT SPECIFICATION

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Complete Specification
Entitled MOWING MACHINE.

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229,188(30,414/57) 32.2.

The following statement is a full description of this invention, including the best method of performing it known to me.:

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The present invention relates to a mowing machine for mowing grasses and other low crops which comprises a plurality of interconnected mower units, each carrying at its bottom side at least one blade rotatable about a vertical axis.

There are prior proposals for mowing machines comprising a central mower unit having on both sides wing unit attachments which differ in shape both from each other and from the central mower unit. Each of these units may be provided with one or more mowing blades.

A disadvantage of this mowing machine is that the three mower units cannot be interchanged. If one of the units is out of order, it must be repaired in a repair shop, which is time-consuming, or be replaced by a corresponding unit, which is expensive.

The great diversity of mower units constitutes a bar to a rationalization of their manufacture, which again involves high costs of production.

For the buyer, too, in this case the agricultural or fruit-growing undertaking, costs are high if it is necessary to purchase mowing machines of greater and smaller operational width for different plots.

Other drawbacks of the rotary mowers are the unwieldiness and the heavy weight of mower units having a plurality of blades, which renders packing in cases and transport, especially in the case of export, very expensive.

In many cases it is necessary for the frame of a mower unit to be zinc-plated for protection against attack by acids from the crops mown. For this purpose,

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very large zinc plating baths must be made for mower units having a plurality blades, which again implies increase in costs.

It is an object of the present invention to remove the above-mentioned drawbacks.

To this end, according to the invention, the mowing machine is built up by combination of interchangeable, identical mower units.

For the purpose of a rational manufacture, according to the invention, each mower unit may be provided with only one blade-carrying shaft suspended from a cover plate.

Further, according to the invention, each unit may, in top view, have the shape of a polygon, for example, an equilateral hexagon or a rectangle.

For the purpose of keeping the top face of a mower unit flat, according to the invention, the plane cover plate may be provided with a downwardly extending flange extending along its periphery or part of its periphery. Along such flanges, the mower units may be interconnected two by two to form a rigid whole by means of bolts and the like.

Since identical units are coupled together, a farmer can buy the maximum number of such units required and use them in every desired combination. When the mowing machine is damaged, it need not be repaired or replaced in its entirety, but it is sufficient to repair or replace the damaged mower unit, so that only one reserve unit is required.

By rationalization and standardization of the mower units a saving of 50% on the cost price can be obtained.

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The smaller, compact mower units with their bent-over flanges are very strong, and together, too, they form a rigid whole, so that no additional reinforcing ribs or tubes are necessary, which in the existing rotary mowers account for a substantial part of their weight. Accordingly, a mowing machine composed of these mower units may be constructed much lighter than the prior machines.

Also, the mower units can each separately be easily zinc-plated in a normal zinc plating bath.

The packing and transport of the machine can be effected in small, easily handled cases or crates, which reduces transport costs.

In illustration of the invention, some embodiments will be described with reference to the accompanying drawings.

Fig. 1 shows a mowing machine composed of four mower units;

Fig. 2 is a vertical section through a mower unit taken on the line II-II in Fig. 1;

Fig. 3 is a top view of an equilateral hexagonal mower unit provided with reinforcing ribs pressed into the plate;

Fig. 4 shows diagrammatically a mowing machine composed of three rectangular units and having a swinging disc;

Fig. 5 shows three identical mower units having peripheral outlines of a configuration composed of circular arcs.

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Referring to Fig. 1, 2 and 3, a mower unit includes an equilateral hexagonal disc or plate 1 having flanges 2 bent over vertically downwardly. A bearing house 3 is mounted in the centre of the plate by means of a flange 4. The bearing house 3 journals a shaft 5 carrying at its lower end a rotary blade 6, a V-string pulley 7 (shown diagrammatically) being mounted on the end projecting above the plate.

The flanges 2 are provided with a number of pair-wise arranged bolt holes, between which a horizontal groove is formed in the flanges. When two mower units are bolted together, by means of bolts and nuts 9, they are placed with the flanges in contact with each other, so that the grooves formed in the flanges are opposite each other. Before the bolts and nuts are turned home, a steel bar 10 is placed into the grooves, as a result of which, after the bolts and nuts have been fastened, the mower units are prevented from rotation relative to each other and the fastening bolts are not subjected to shearing forces.

The drive of the separate circular blades is effected either from the take-off shaft of a tractor, or by a separate motor by way of V-strings 11, 12, lapped over the V-string pulleys of the blade shafts, in which case tensioning rollers 13, 14 may be mounted on one or more mower units to provide for proper tension of the V-strings.

For supporting the machine, each unit may be provided with support wheels 15 in the form of swivelling wheels, or with other support means of adjustable height.

As a result of the relative position of the hexagonal mower units in a mowing machine, the strips mown

by each rotary blade overlap each other in the well-known fashion.

According to Fig. 4, the mower units are rectangular and fastened to each other by one side of the rectangle. Since in this embodiment the rotary blades have their axes in co-planar relationship and overlap each other, they should be driven by means of a gear transmission so as not to touch each other.

The mower units shown diagrammatically in Fig. 5 represent a possible embodiment of the invention.

It will be evident that it is possible to connect the known per se swinging disc attachment to the left or right hand mower unit of a mowing machine composed of the mower units.

The claims defining the invention are as follows:

1. A mowing machine for mowing grasses and other low crops comprising a plurality of interconnected mower units each carrying at its bottom side at least one blade rotatable about a vertical axis, characterized in that the mowing machine is built up by combining interchangeable, identical mower units. (4th June, 1962)

2. A mowing machine according to claim 1, characterized in that each mower unit is provided with only one blade-carrying shaft, which is suspended from a cover plate. (4th June, 1962)

3. A mowing machine according to claim 1 or 2, characterized in that each mower unit has, in top view, the shape of a polygon. (4th June, 1962)

4. A mowing machine according to claim 3, characterized in that each mower unit has, in top view, the shape of a rectangle. (4th June, 1962)

5. A mowing machine according to claim 3, characterized in that each mower unit has the shape of an equilateral hexagon. (4th June, 1962)

6. A mowing machine according to claims 2 - 5, characterized in that the cover plate of each mower unit is provided with a flange bent over vertically downwardly and extending along at least a portion of its periphery. (4th June, 1962)

7. A mowing machine according to any one of claims 1 - 6, characterized in that the mower units are adapted

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to be connected to each other to a rigid whole.

(4th June, 1962)

8. A mower unit for a mowing machine according to any one of the preceding claims.

(4th June, 1962)

9. A mowing machine substantially as hereinbefore described with reference to the accompanying drawings.

(4th June, 1962)

10. A mower unit substantially as herein described with reference to the accompanying drawings.

(4th June, 1962)

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